



MUM-T for the Abrams Lethality Enabler

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UNPARALLELED
COMMITMENT
& SOLUTIONS

Act like someone's life depends on what we do.



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- I. Abrams Tanks
- II. Unmanned Aerial Vehicles (UAVs)
- III. Currently Fielded UAVs
- IV. Unmanned Ground Vehicles (UGVs)
- V. Unmanned Assets (UxVs) with Armored Vehicles
- VI. Potential Scenarios
- VII. Abrams Lethality Enabler Phase 1
- VIII. Future Phases
- IX. Conclusion

- The M1 series Abrams tank is the current Main Battle Tank
- Heavily armored, large caliber gun
- Destroy enemy armored vehicles
- Deployed onto the battlefield to engage/direct fire
- Provides ground superiority to hold a position



- Fixed Wing
 - More efficient/Significantly longer flight time
 - Cover more area for ISR
 - Cannot loiter as easily

- Single Rotor
 - Longer endurance over multi-rotor
 - Heavier payload capacity if necessary
 - More Versatile than fixed wing
 - Constant force generation required

- Multi-Rotor
 - Easiest to fly
 - High maneuverability
 - Loiter around a location for fixed area ISR



- MQ-1C Gray Eagle
 - Currently in service
 - Equipped with Hellfire missiles
 - Replaced the Predator drones
 - Battalion Asset
 - Cannot loiter
 - Too fast for Armor Vehicle OpTempo

- RQ-11 Raven
 - Hand launched
 - Waypoint navigation or supervised
 - Hard to deploy from armored vehicle



- Wheeled vehicles
 - Low production costs
 - Repair/Simplicity
 - Lower impact on infrastructure

- Tracked
 - Traction – ground impact
 - Mobility/Versatility
 - Can keep tempo with Armored Vehicles



- Intelligence, Surveillance, and Reconnaissance (ISR)
 - Target Detection/Recognition
 - Battle Damage Assessment
- IED Defeat
 - Route Clearance
 - Road side bomb trigger
- Remote breaching operations
 - Obscuration
 - Lane clearing (MICLIC Launcher)
 - Lane proofing/marketing
- Mobile RWS
- Persistent Smoke Generation





- ISR
 - Spot enemy in defilade
 - UAV or UGV

- ATGM team spotted and engaged
 - Combat UAV (UCAV)
 - Mobile RWS

- IED Detection
 - UAV with Thermal Sight

- Route Clearing
 - Tracked APC equipped with plow

- Persistent Smoke Generation
 - UGV with Smoke Generator

- UGV In Position
- UGV Deploy Smoke
- Can be used for
 - Cover
 - Deception
 - Breaching Obscuration
 - **S**OSRA



UxV Controller

- Map of area
- Video feed from UxV
- Toggle switch/button
- Man portable and platform agnostic



UAV



Scout + Smoke
Generator



Robotic HMMWV Mortar
System



Purpose:

- Demonstrate the value of unmanned assets within an Armored Brigade Combat Team

Product:

- Integrate supervised-autonomy capability onto a UGV
- Integrate UxV OCU mount into Abrams Loader station
- UGV to address capability gap for persistent smoke
- Utilization of UAV to provide ISR and battle damage assessment

Payoff:

- Testing will demonstrate the deliverable of persistent smoke to obscure an armored vehicle from OPFOR positions
- Follow-on phases to increase lethality and extend fire control system



- Extend range of platform's fire control
 - Laser rangefinder
 - Laser designator
 - Downrange Met. Sensor
- Extend range of Armor Unit's lethality/sphere of influence
 - Mount UxVs with Weapon Systems
 - Increase situational awareness
- UAV with increased flight time
- Increase Engineering Asset survivability

- ALE clearly illustrates the Man-Unmanned Teaming benefits
 - Increase stand off distance
 - Increase lethality, LOS, SA
- ALE Demonstration & Future Phases
- Currently Fielded UAVs – Fixed Wing
- Platform agnostic

